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## R E M A R K S

First, counsel for Applicants wishes to express appreciation and thanks for the Examiner's time and courtesy during the teleconference conducted on December 7, 2001, with Applicants' representative James E. Ruland. Applicants appreciate the Examiner's indication that she would consider this supplemental paper before issuing a subsequent paper from the Office. This paper supplements Applicants' Amendment and Reply filed November 5, 2001. As such, the arguments previously provided still apply unless withdrawn by this paper.

### Specification Objections

Please refer to Applicants' Amendment and Reply filed November 5, 2001.

### Claim Amendments

Claims 1-12 have been amended to replace plural with singular nouns. Also, claim 12 has been amended to replace "consisting" with --comprising--. These amendments are not made for statutory reasons nor for narrowing the scope of the claims.

Also claims 13-21 have been added. Support for these claims can be found in the specification at pages 3-4, 6 and 9-11.

### Claim Rejections Under 35 U.S.C. §101 and 112, second paragraph

Claims 1-12 stand rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Particularly, the Action alleges that:

- 1) "characterized in that" in claims 1-12 is a relative term which renders the claim indefinite;
- 2) "intrinsically" is unclear in claim 1;
- 3) "difficult" is a relative term in claim 1 which renders the claim indefinite;
- 4) "the plastics system" has insufficient antecedent basis in claims 4 and 8;
- 5) "retained in" as used in claim 5 is unclear;
- 6) "the light sensitive pigments" has insufficient antecedent basis in claim 8;
- 7) providing for the use of laser-markable plastics in claim 11 is unclear and is not a proper process claim; and
- 8) "high-temperature-resistant plastic" in claim 2 is a relative term which is indefinite.

Applicants amended claims 4, 8, and 11 in their last paper to obviate the rejections with respect to rejection grounds 4) and 7). In addition, Applicants have amended claims 1-10 to obviate the rejection grounds 1)-3) and 6). As such, Applicants respectfully request that these rejections be withdrawn.

Regarding the rejection grounds 5 and 8, Applicants respectfully submit that the ordinary artisan can readily ascertain the metes and bounds of the claimed invention. Particularly, the term "retained" is discussed in the present specification at page 6, lines 29-37. The specification states:

When choosing the intrinsically markable polymer to be milled it should be borne in mind that the particle structure is retained following the incorporation; in other words, the particles should not be soluble in the melt, and should not melt as well.

Regarding the "high-temperature-resistant plastic", Applicants respectfully submit that one of skill in the art would readily know a "high-temperature-resistant plastic" in context of the present invention. Particularly, in view of exemplary high-temperature-resistant plastics discussed in the specification at page 4, lines 6-17.

If the scope of the subject matter embraced by the claims is clear, and if Applicants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. §112, second paragraph (M.P.E.P. §2173.04).

Consequently, because the claims are sufficiently definite, Applicants respectfully request that these rejections be withdrawn.

#### Claim Rejections Under 35 U.S.C. §103(a)

Claims 1-12 stand rejected as allegedly being unpatentable over WO 95/30716 (WO) in further view of EP 0 367 629 (EP). Applicants respectfully traverse these rejections.

To establish *prima facie* obviousness of a claimed invention, all claim features must be taught or suggested by the prior art. The Action fails to allege that WO or EP discloses micromilled particles. As attested in the attached declaration, the micromilled particles in the plastic have an irregular shape (See Picturess 1-3).

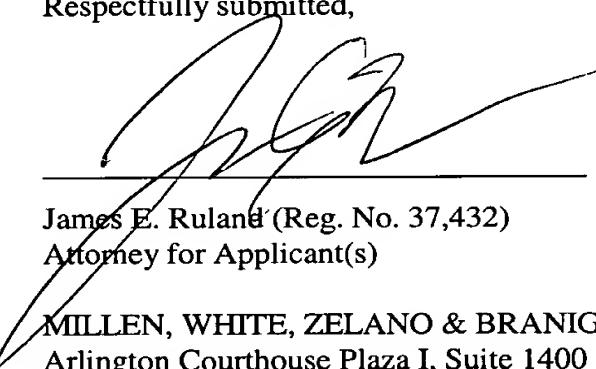
In marked contrast, evidence is provided that WO discloses thermoplastic or thermosetting synthetic materials containing a micropowder with spherical particles, which have an essentially smooth surface structure. Thus, a micropowder is not micromilled particles as defined by the present invention. EP fails to cure this deficiency because EP discloses conjugated aromatic polymers dispersed as light-scattering materials. Thus, none of the cited art discloses micromilled particles with an irregular surface for the use as absorbers in plastics.

*>show where,*

Furthermore, the micromilled particles of the present invention provide significant and unexpected results, and are distinct from micropowders. Particularly, the micromilled particles of the present invention are easily dispersed into the plastics and do not agglomerate due to the irregular surface. Furthermore, plastic doped with the micromilled particles of the present invention shows high contrast, and crisply contoured markings even at low laser intensities after bombardment with a laser. These properties are significant and unexpected in view of the prior art.

In view of the above remarks, favorable reconsideration is courteously requested. Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned, "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**". If there are any remaining issues which can be expedited by a telephone conference, the Examiner is courteously invited to telephone Counsel at the number indicated below.

Respectfully submitted,



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**Filed: November 14, 2001**

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS**

**Claims 1-12 have been amended as follows:**

**1. (Amended)** A ~~L~~aser-markable plastics, characterized in that comprising a plastic ~~which is difficult to laser mark~~ comprises as and an absorber material an intrinsically of a laser-markable polymer in the form of micromilled particles having a particle size of 0.1 - 100  $\mu\text{m}$ .

**2. (Amended)** A ~~L~~aser-markable plastics according to Claim 1, characterized in that wherein the absorber material is a high-temperature-resistant plastic.

**3. (Twice Amended)** A ~~L~~aser-markable plastics according to Claim 1, characterized in that wherein the absorber material is polyphenylene sulfide, polysulfone, polyarylate, polyimide, a liquid-crystalline polymers or a mixture thereof.

**4. (Thrice Amended)** A ~~L~~aser-markable plastics according to Claim 1, characterized in that wherein the proportion of the absorber material based on a plastics system is 0.1 - 10% by weight.

**5. (Twice Amended)** A ~~L~~aser-markable plastics according to Claim 1, characterized in that wherein the particle structure of the intrinsically markable polymer is retained in the plastic.

**6. (Twice Amended)** A ~~L~~aser-markable plastics according to Claim 1, characterized in that wherein the absorber material additionally comprises, as further absorber, one or more light-sensitive pigments.

**7. (Amended)** A ~~L~~aser-markable plastics according to Claim 6, characterized in that wherein the light-sensitive pigment is natural or synthetic mica, copper phosphate, a special-effect pigment, a conductive pigment, a metal nitrate, a metal sulfate, a metal sulfide or a metal oxide.

**8. (Thrice Amended)** A ~~L~~aser-markable plastics according to Claim 1,

~~characterized in that wherein~~ the proportion of a light-sensitive pigments in the plastic is from 0 to 5% by weight, based on a plastics system.

**9. (Twice Amended)** ~~A~~ Laser-markable plastics according Claim 1, ~~characterized in that wherein~~ the plastic which is difficult to laser treat is polyethylene, polypropylene, polyamide, polyoxymethylene, polyester, polymethyl methacrylate, polyurethane or a copolymer thereof.

**10. (Twice Amended)** ~~A~~ Laser-markable plastics according Claim 1, ~~characterized in that they additionally further comprising at least one color comprise colour~~ pigments.

**11. (Twice Amended)** A method for producing ~~a~~ mouldings comprising marking with the aid of ~~a~~ lasers ~~a~~ laser-markable plastics according to Claim 1.

**12. (Amended)** ~~A~~ Mouldings consisting of comprising the laser-markable plastic according to Claim 1.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re-application of

Sabine SCHOEN

Serial No.: 09/446,326  
Filed: December 20, 1999  
For: Laser-markable plastics

Group Art Unit: 1744  
Examiner: Kimberly T. Nguyen

**DECLARATION**  
**under 37 C.R.F. § 1.132**

Honorable Commissioner of Patents and Trademarks  
Washington, D.C., 200231

SIR:

The Declarant, Gerhard Edler, being duly warned, deposes and says:

THAT he is a German citizen, residing at Königstädterstr. 24,  
65468 Trebur

THAT he is a technician in plastic by training and experience;

THAT he joined Merck KGaA, Darmstadt in 1965;

THAT he is author or co-author of several papers and patents in the field of laser-markable plastics;

THAT he is familiar with the subject matter of U.S. Patent Application Ser. No. 09/446,326 filed December 20, 1999 (hereinafter referred to as APPLICATION);

THAT he is familiar with the subject matter of WO 95/30716 and EP 0 367 629 cited in the Office Action for the APPLICATION of May 03, 2001;

THAT the APPLICATION relates to plastics of which a feature is that a plastic, which is difficult to laser-treat comprises as absorber material one or more intrinsically laser-markable polymers in the form of micromilled particles having a particle size of 0.1-100  $\mu\text{m}$ ;

THAT the micromilled particles in the plastic have an irregular shape, which can be seen from the enclosed REM photographs (Pictures 1-3). The REM photographs show micromilled polyphenylene sulfide;

THAT contrary to the APPLICATION the WO 95/30716 discloses thermoplastic or thermosetting synthetic materials containing a micropowder with spherical particles, which have an essentially smooth surface structure;

THAT contrary to the APPLICATION the EP 0 367 629 A1 discloses conjugated aromatic polymers (e.g. PEEK) dispersed as light-scattering materials;

THAT contrary to the absorbers of the PRIOR ART the micromilled particles of the APPLICATION can be easily dispersed into the plastics and at the same do not agglomerate due to the irregular surface;

THAT plastics containing the micromilled particles according to the APPLICATION can be marked very effectively;

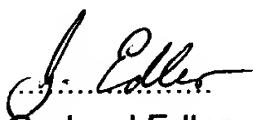
THAT a plastic doped with the micromilled particles according to the APPLICATION unexpectedly shows high contrast, crisply contoured markings even at low laser intensities after bombardment with a laser;

THAT the laser-markable plastics of the APPLICATION and those described in WO 95/30716 in further view of EP 0 367 629 A1 are completely different;

THAT none of the cited PRIOR ART documents discloses micromilled particles with an irregular surface for the use as absorbers in plastics;

THAT the undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 19 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Done, this on the 20 of November 2001 at  
Darmstadt, Germany

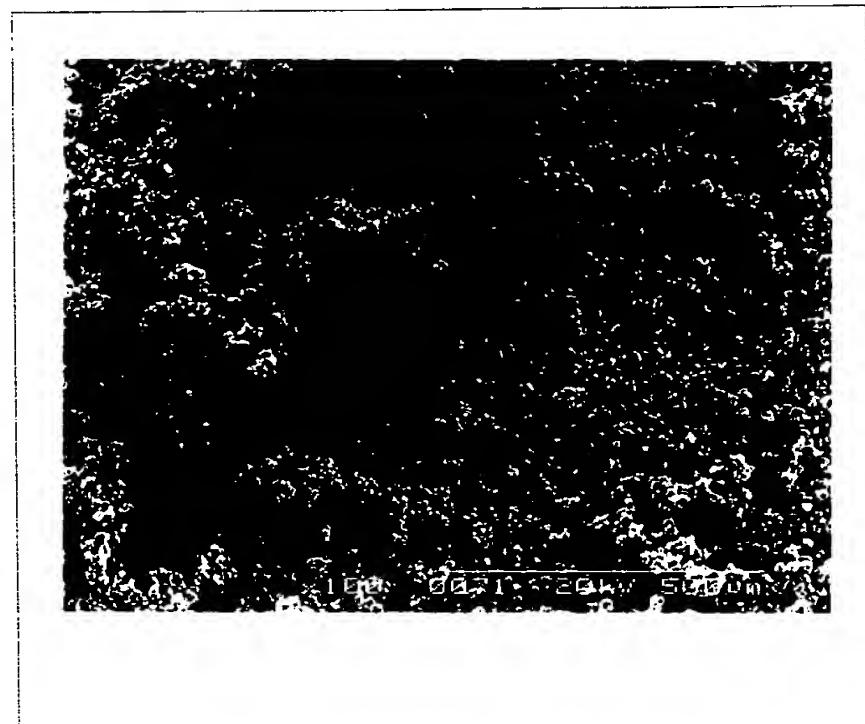


Gerhard Edler

raw material

PPS (= polyphenylene sulfide)

Picture 1



x 100

Picture 2

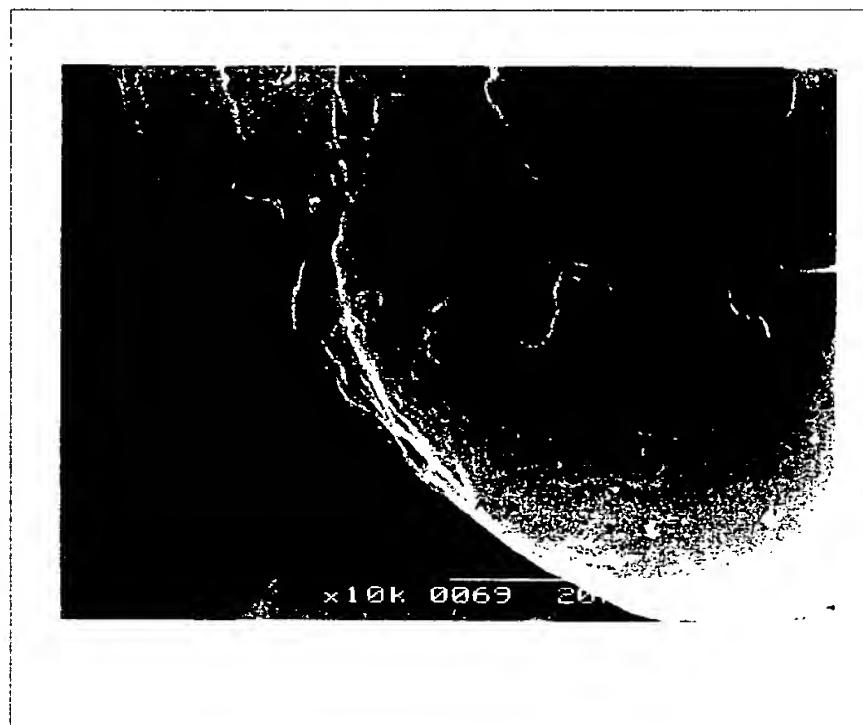


Merck KGaA.

13.06.01

raw material  
PPS

Picture 3



x 10000